

Claims

1. A device for installing an optical fibre in a connector, comprising:
an optical fibre cleaving mechanism;
5 a connector holding means; and
a fibre insertion mechanism;
arranged such that an optical fibre may be cleaved by the cleaving mechanism to produce an end of the fibre, and the end of the fibre may be inserted by means of the insertion mechanism into a connector held by the connector holding means.
- 10 2. A device according to claim 1, in which the end of the fibre is inserted into the connector in a predetermined orientation with respect to the connector.
- 15 3. A device according to claim 1 or claim 2, in which the cleaving mechanism is arranged to cleave the optical fibre such that an end face of the end of the fibre so produced is oriented at a non-perpendicular angle with respect to the longitudinal axis of the fibre.
- 20 4. A device according to claim 3, in which the insertion of the fibre into the connector by the insertion mechanism is such that the orientation of the non-perpendicular end face of the fibre with respect to the connector is predetermined.
- 25 5. A device according to any preceding claim, comprising a main body within which the cleaving mechanism is located.
- 30 6. A device according to claim 5, in which the cleaving mechanism may be accessed by an optical fibre to be cleaved, only by insertion of the fibre through an aperture in the main body.
7. A device according to any preceding claim, in which the insertion mechanism manipulates the fibre in order to insert the end of the fibre in the connector.
- 35 8. A device according to claim 7, in which the insertion mechanism moves the cleaved end of the fibre with respect to the connector holder in a direction along a longitudinal axis

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of the fibre, which axis extends from the cleaved end of the fibre, in order to insert the fibre in a connector.

9. A device according to claim 8, in which the axial movement of the fibre by the
5 insertion mechanism comprises movement of the insertion mechanism to a locking position at which the fibre is fully inserted into the connector.

10. A device according to claim 9, in which, when the insertion mechanism is in its locking position, the insertion mechanism resists removal of the fibre out of the connector,
10 and resilient means of the insertion mechanism applies an insertion force to the fibre.

11. A device according to any preceding claim, in which the insertion mechanism comprises a curved support on which the fibre is retained when the end of the fibre is inserted into the connector.

15 12. A device according to claim 11, in which the curved support comprises an at least partial disc, on the circumference of which the fibre is retained.

13. A device according to any preceding claim, in which the insertion mechanism clamps
20 the fibre during the cleavage of the fibre.

14. A device according to claim 13, in which the clamping of the fibre by the insertion mechanism is maintained subsequent to the cleavage of the fibre, until the fibre has been inserted into the connector.

25 15. A device according to claim 13 or claim 14, when dependent upon claim 12, in which the clamping and retention of the fibre on the support is achieved by rotating a pivoted fibre lock member of the at least partial disc of the support around at least part of the circumference thereof.

30 16. A device according to claim 15, in which the rotation of the fibre lock member traps the fibre in a groove in the circumference of the support, the groove decreasing in depth along the circumference in the direction of rotation of the fibre lock member.

17. A device according to claim 7 or any claim dependent thereon, in which the insertion mechanism rotates the end of the fibre between a cleavage orientation and an insertion orientation with respect to the connector holder, in order to insert the fibre into the

5 connector.

18. A device according to claim 17, in which the rotation of the fibre by the insertion mechanism is through substantially 90 degrees.

10 19. A device according to any preceding claim, in which the connector holding means comprises a cradle for a connector, which is movable with respect to the remainder of the device.

15 20. A device according to claim 19 when dependent upon claim 5 or any claim dependent thereon, in which the cradle is movable across the main body of the device between two opposite insertion positions, in which optical fibres may be inserted into respective opposite ends of a connector held by the cradle to form an optical fibre splice in the connector.

20 21. A device according to claim 20 when dependent upon claim 17 or any claim dependent thereon, in which there are two opposite insertion orientations of the insertion mechanism, in which the insertion mechanism is situated on opposite sides of its cleavage orientation, the opposite insertion orientations being for inserting fibres into a connector located respectively in the two opposite insertion positions of the cradle.

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22. A device according to claim 3 or any claim dependent thereon, in which the cleaving mechanism is arranged to produce the non-perpendicular end face of the fibre such that the end face lies in a plane substantially perpendicular to a direction of insertion of the fibre into a connector held by the connector holding means.

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23. A device according to claim 22 when dependent upon claim 21, in which the non-perpendicular end faces of two fibres spliced in the connector are 180 degrees opposed, around a rotational axis comprising the longitudinal axis of the fibres.

24. A device according to any preceding claim, further comprising one or more wedge members that are movable with respect to the connector holding means to open a connector held by the holding means, to enable the insertion of an optical fibre therein.

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25. A device according to claim 24 when dependent upon claim 20 or any claim dependent thereon, comprising one or more wedge members located adjacent to each insertion position of the cradle, arranged to open respective parts only of a connector held by the cradle, to allow the insertion of an optical fibre into respective opposite ends of the connector.

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26. A device according to any preceding claim, further comprising at least one handle which, when moved to an actuation position causes the cleaving mechanism to cleave an optical fibre.

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27. A device according to any preceding claim, comprising a hand operated tool.

28. The use of a device according to any preceding claim, to install an optical fibre in an optical fibre connector.

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29. The use according to claim 28, in which the connector comprises at least two parts between which the optical fibre is inserted by the insertion mechanism of the device.

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30. The use according to claim 29 when dependent upon claim 24, in which the parts of the connector are opened by the wedge member(s), thereby enabling the insertion of the optical fibre into the connector.

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31. The use according to claim 30, in which the connector, and the wedge members and the connector holding means of the device, are arranged such that the wedge members open only a portion of the connector at a time, to install an optical fibre in that portion of the connector while leaving another portion of the connector unopened.